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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,936	12/01/2000	Jie Yan	154616.1/MCS-051-00	2817

27662 7590 10/28/2003  
LYON & HARR, LLP  
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EXAMINER
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BALI, VIKKRAM

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 10/28/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/728,936

Applicant(s)

YAN ET AL.

Examiner

Vikkram Bali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: applicant is advised to incorporate the application number and the filing date of the copending application on page 21 of the specification.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 11 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the facet-based representation" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "the illumination" in line 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deformable model based generation of realistic 3D specific human face, by Yan et al. in view of Kung et al (US 5850470).

With respect to claim 1, Yan discloses a face of an subject, a generic face model, creating a specific 3 D model of the subject by deforming the generic face model to

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conform to the shape of the face, synthesizing various face pose images, (see page 857, col. 2, lines 17-32) as claimed. However, he fails to disclose, the training of the recognizer for face recognition, as claimed. Kung teaches a facial recognition system using a database of images to train the recognizer (see col. 4, lines 5-13) as claimed.

Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to combine the two reference as the Yan suggested there is a distinct differences even in the identical twin faces (see page 857, col. 1, last two lines through col. 2 first two line) and using this suggestion the teaching of the face recognition system is obvious as the face recognition system recognizes the face from different number of faces, and this will provide accurate distinctions between the faces.

With respect to claim 2, Yan further discloses the spline surface construction technique, (see page 857, col. 2, lines 25-27, simulate the plastic visco elastic behavior of the facial skin) as claimed.

With respect to claim 3, Yan further discloses, texture mapping technique, (see page 859, col. 2, lines 17-21) as claimed.

With respect to claims 4 and 5, Yan further discloses, frontal view and one profile view of the face, and face view each having poses varying in orientation from the others by at least 15 degrees, (see page 858, col. 2, section 3 first three lines the views are at least 15 degrees apart from each other) as claimed.

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With respect to claim 6-8, Yan further discloses, inputting a generic 3D face model comprises a polygon model, deformation techniques to create a specific 3D model of the subject, extracting features point sets and modifying the generic face model, (see section 2, 3 and 5 on pages 857,858 and 859) as claimed.

With respect to claim 9, Yan further discloses, the symmetry of the face (see the figure 6, the symmetrical images as used) as claimed.

With respect to claim 10, Yan further discloses, two or more images are used to create the model, refining the specific model of the face by using additional images, (see page 859, col. 1, lines 4-11) as claimed.

With respect to claim 11 as best understood, Yan further discloses, the facet based representation of the specific face, (see col. 2 lines 22-27 of page 857) as claimed.

With respect to claim 16, it is a design choice to assume the degree of rotations and the increments in order to get the good results, as suggested by Yan in page 859, lines 4-11. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to simply get the degree of rotations and the increments by

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different experiments in order to get more realistic shape of the specific model of the face.

4. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Yan et al. in view of Kung et al (US 5850470) as applied to claim 3 above, and further in view of Deering (US 6525723).

With respect to claim 12 by Yan and Kung discloses the invention substantially as disclose and as described above in claim 3. However, they fail to disclose the color intensity of each pixel is assigned in order to do the textural analysis as claimed. Deering teaches assigning the color intensity to the pixel and the image is smoothed later to get the more realistic final image, (see col. 3, lines 12-35) as claimed. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to simply combine the references to incorporate color intensity of the pixels as the image in Yan is made up of pixels and the intensities are the values of the pixels and using this for the smoothing of the image as taught by the Deering in order to get more realistic final image, (see col. 3, lines 33-34 of Deering) as motivation.

With respect to claims 13-15, Yan further discloses the Bezier patch analysis in all the planes (i.e. all the three poses, see page 859, section 5 in col. 2) as claimed.

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5. Claim 17 as best understood is rejected under 35 U.S.C. 103(a) as being unpatentable over by Yan et al. in view of Kung et al (US 5850470) as applied to claim 1 above, and further in view of Illumination based image synthesis, by Georgiades, June 1999.

With respect to claim 17 by Yan and Kung discloses the invention substantially as disclose and as described above in claim 1. However, they fail to disclose varying illumination to produce the synthetic images as claimed. Georgiades teaches illumination based image synthesis (see the article section 1 introduction) as claimed. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to simply combine the references to incorporate the illumination based image synthesis as there present the illumination means in order to take the images in the Yan reference and this will produce an apparatus that does not require any knowledge of light source (see paragraph 1 of section 1 of Georgiades).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Vikkram Bali  
Examiner  
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